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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/322,062	05/27/1999	AVINOAM RUBINSTAIN	23005-719	7457

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EXAMINER

LIU, SHUWANG

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/322,062

Applicant(s)

RUBINSTAIN ET AL.

Examiner

Shuwang Liu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-3, 6-8, 10 and 14-15 have been considered but are moot in view of the new ground(s) of rejection because of the amendment.

### ***Claim Objections***

2. Claims 4, 5, 9, and 13 are objected to because of the following informalities:  
In claim 4, line 11, change "sire" to - -wire—; and same changes for other claims.  
In claim 4, line 5, change "destined" to - -designed- -.  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily

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published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1, 4, 5, 6, 9, 10, 13 16 and 17 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Chan (US 6,332, 004, figures 1-6).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 and 6-8 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Timm et al. (US 6,055,268) in view of Lau (US 5,896,417).

As shown in figures 3a and 3c, Timm et al. discloses a point to point facility transport system for the symmetrical bi-directional (column 6, lines 54-67) transport of 100BaseTX Ethernet frame data over N copper wire pairs connecting a central office facility to a customer premise (column 15, line 66-column 16, line 8), comprising:

(1) regarding claim 1:

N downstream transmission paths (140) for transporting signal 100BaseTX Ethernet (column 16, lines 1-8) frame data transmitted from the central office (220) facility destined to the customer premise (100);

N upstream transmission paths (140) for transporting 100BaseTX Ethernet frame data transmitted from the customer premise (100) destined to the central office facility (220);

first modem means (first modem in 220) located at the central office facility and coupled to one end of said N downstream transmission paths (140) and one end of said N upstream transmission paths (see figure 6f);

second modem means (100) located at the customer premises and coupled to the other end of said N downstream transmission paths (140) and the other end of said N upstream transmission paths (see figure 6f);

wherein said first modem means and said second modem means are operative to place onto and receive from said N copper wire pairs, data frames encapsulating said 100Base TX Ethernet frame data (column 15, line 66-column 16, line 8 and see figure 2f); and

wherein N is a positive integer in the range of one to four.

Timm et al. discloses all of the subject matter as described above except specifically teaching each upstream downstream transmission and each downstream transmission path operative to transport a 25 Mbps data stream as recited.

Lau, in the same field of endeavor, teaches a 100Base TX Ethernet modem (transceiver) (see figure 2) comprising RXO having four upstream transmission paths

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(lines) and TXI having four downstream transmission paths (lines), wherein each transmission path is operative to transport a 25 Mbps data stream as recited (column 8, lines 13-16).

One skilled in the art would have clearly recognized that telephone lines exist in almost all the buildings. It is desirable to use legacy equipments (existing telephone lines) in the buildings to provide a higher speed data link (at 100 Mbps) in order to reduce the cost for wiring another new line as the communication channel. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the 100BaseTX Ethernet modem of Lau in both of the central office facility and the customer premise of Timm et al. because such combination provides the higher speed data transmission at lower cost.

(2) regarding claim 2:

wherein said downstream transmission path utilizes quadrature amplitude modulation (QAM) to transport said Ethernet frame data from said central office facility to said customer premise (figure 6f, column 17, lines 45-51, column 10, lines 14-20, column 16, lines 44-51).

(3) regarding claim 3:

wherein said upstream transmission path utilizes quadrature amplitude modulation (QAM) to transport said Ethernet frame data from said customer premise to said central office facility (figure 6f, column 17, lines 45-51, column 10, lines 14-20, column 16, lines 44-51).

(4) regarding claim 6:

In addition to claim 1, Timm et al. further discloses the system comprising:  
first splitter means (SPLITTER in 220 in figure 3c) coupled to said first modem means and to said V copper wire pairs; and

second splitter means (SPLITTER in CUSTOMER PREMISES in figure 3c) coupled to said second modem means and to said N copper wire pairs;

wherein said first splitter means and said second splitter means are operative to combine and split said POTS and N downstream and N upstream transmission path signals (column 16, lines 12-26).

Timm et al. discloses all of the subject matter as described above except specifically teaching each upstream downstream transmission and each downstream transmission path operative to transport a 25 Mbps data stream as recited.

Lau, in the same field of endeavor, teaches a 100Base TX Ethernet modem (transceiver) (see figure 2) comprising RXO having four upstream transmission paths (lines) and TXI having four downstream transmission paths (lines), wherein each transmission path is operative to transport a 25 Mbps data stream as recited (column 8, lines 13-16).

One skilled in the art would have clearly recognized that telephone lines exist in almost all the buildings. It is desirable to use legacy equipments (existing telephone lines) in the buildings to provide a higher speed data link (at 100 Mbps) in order to reduce the cost for wiring another new line as the communication channel. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the 100BaseTX Ethernet modem of Lau in both of the central office facility and the

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customer premise of Timm et al. because such combination provides the higher speed data transmission at lower cost.

(5) regarding claim 7:

wherein each downstream transmission path utilizes quadrature amplitude modulation (QAM) to transport said 100BaseTX Ethernet frame data from said central office facility to said customer premise (figure 6f, column 17, lines 45-51, column 10, lines 14-20, column 16, lines 44-51).

(6) regarding claim 8:

wherein each upstream transmission path utilizes quadrature amplitude modulation (QAM) to transport said 100BaseTX Ethernet frame data from said customer premise to said central office facility (figure 6f, column 17, lines 45-51, column 10, lines 14-20, column 16, lines 44-51).

7. Claims 10, 14 and 15 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Booth (US 6,065,073) in view Lau (US 5,896,417).

As shown in figures 4 and 5, Booth discloses a point to point facility transport system for the symmetrical bi-directional transport of 100BaseTX Ethernet frame data over N copper wire pairs (see figure 5) connecting a central office facility (302) to a customer premise (client computer, 312, 326, and 310), comprising:

(1) regarding claim 10:

N downstream transmission paths (To LAN 300 Via Copper Cable) for transporting 100BaseTX Ethernet frame data transmitted from the central office facility destined to the customer premise (column 12, lines 32-44);



N upstream transmission paths (From LAN 300 Via Copper Cable) for transporting 100BaseTX Ethernet frame data transmitted from the customer premise destined to the central office facility (column 12, lines 32-44);

switch means (420) located at the central office facility and coupled to one end of said N downstream transmission paths and one end of said N upstream transmission paths;

a network element (326, 312 and 310) located at the customer premises and coupled to the other end of said N downstream transmission paths and the other end of said N upstream transmission paths; and

wherein said switch means and said network element are operative to place onto and receive from said N copper wire pairs data frames encapsulating said 100BaseTX Ethernet frame data (column 4, lines 7-26 and column 12, lines 18-44).

Booth discloses all of the subject matter as described above except specifically teaching each upstream downstream transmission and each downstream transmission path operative to transport a 25 Mbps data stream as recited.

Lau, in the same field of endeavor, teaches a 100Base TX Ethernet modem (transceiver) (see figure 2) comprising RXO having four upstream transmission paths (lines) and TXI having four downstream transmission paths (lines), wherein each transmission path is operative to transport a 25 Mbps data stream as recited (column 8, lines 13-16).

One skilled in the art would have clearly recognized that telephone lines exist in almost all the buildings. It is desirable to use legacy equipments (existing telephone

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lines) in the buildings to provide a higher speed data link (at 100 Mbps) in order to reduce the cost for wiring another new line as the communication channel. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the 100BaseTX Ethernet modem of Lau in both of the central office facility and the customer premise of Booth because such combination provides the higher speed data transmission at lower cost.

(2) regarding claim 14:

wherein said network element comprises a modem (inside 312).

(3) regarding claim 15:

wherein said network element comprises a customer premise switch (326 and 310).

8. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Booth and Lau as applied to claim 10 above, and further in view of Timm et al. (US 6,055,268).

Booth and Lau disclose all of the subject matter as described above except for utilizing quadrature amplitude modulation (QAM) to transport said 100BaseTX Ethernet frame data between the central office facility and the customer premise.

Timm et al. teaches to utilize quadrature amplitude modulation (QAM) to transport said Ethernet frame data between the central office facility and the customer premise (figure 6f, column 17, lines 45-51, column 10, lines 14-20, column 16, lines 44-51).

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It would be desirable to reduce interference and increase capacity or provide high data rate in the communication system by using QAM modulation(column 15, lines 17-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ QAM modulation as taught by Timm et al. in the data transmission in the network of Booth and Lau in order to reduce interference and increase capacity or provide high data rate in the communication system.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is (703) 308-9556.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is 703 305-47000377.



Shuwang Liu  
November 25, 2002